Department of Defense
Department of the Navy

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Finding Of No Significant Impact For The Advanced Deployable System Ocean Tests

Pursuant to Council on Environmental Quality Regulations (40 CFR Part 1500-1508) implementing the procedural provisions of the National Environmental Policy Act (NEPA), the Department of the Navy gives notice that an Environmental Assessment (EA) has been prepared and an Environmental Impact Statement is not required for the Advanced Deployable System (ADS) Single Node and Integrated Article Tests on the West coast of the continental United States.

The proposed action is the ocean testing of the ADS in territorial waters of the U.S., which is designed to test the system's operational effectiveness in an ocean environment. Specifically, the proposed action consists of two tests of increasing complexity and additional hardware. The two ocean tests include:

Single Node Test (SNT) - test of underwater segments designed to evaluate the installation capabilities of the basic hardware components; test duration would last approximately six days.

Integrated Article Test (IAT) - initial integrated system test to verify the design of the system as a whole with each of the components working together; test duration would last approximately 17 days.

A deployment vessel and a support vessel would be required for the tests. For the IAT, a shore station for data processing would also be used. For the SNT, data processing would take place on a moored deployment vessel and a shore station would not be used. Sound sources would be required; although ADS would not use active acoustics, it would be necessary to produce pulsed sounds during the tests to evaluate ADS listening capabilities and array configuration on the sea floor. During the two separate tests, a maximum of three hours of introduced sound would be emitted over seven days of acoustic testing.

Towed Deployment Vehicle

Ocean testing includes: exercising shipboard handling systems, placing up to four military storage vans on shore, towing a Towed Deployment Vehicle (TDV), deploying cables and hydrophone arrays on the bottom, conducting short range acoustic performance tests, and recovering all equipment. A Remotely Operated Vehicle (ROV) will be used during the proposed action. An acoustic tracking system, cameras and lights will be accessories of the ROV and TDV.

The Environmental Assessment addressed the Navy's proposal to conduct the ADS ocean tests in two different locations. For the reasons stated below, the Navy now plans to conduct the SNT in the same location as the IAT. The SNT plan originally included array deployment directly from a test vessel in shallow water and the original SNT site was chosen for its shallow waters. However, the Installation Subsystem Test completed on 14

November 1997 demonstrated the readiness of the Towed Deployment Vehicle (TDV) for integrated testing. This means that the SNT siting criterion for shallow depths is now no longer valid. Depths and conditions defined for IAT are now valid for SNT due to the depth required for successful TDV deployment. Due to this change in criteria, the only two sites available for the SNT which satisfy the siting criteria include those two identified for IAT, and-for the reasons stated in the EA-the primary IAT site is the preferred site for SNT as well.

The proposed IAT site (and now the SNT site) would be within an approximate 6.8 square kilometers (2.6 square miles) area. The Navy and contractors have been performing acoustic and other underwater tests at this site for more than 25 years. The bottom at the proposed test site consists of silt and mud with little to no vegetation, and depth is approximately 200 meters (656 feet). A lease for the proposed test site has also been obtained.

A shore station is proposed for the IAT and is located at a commercial storage facility. The proposed site, the remains of a building foundation, is a 59-by-117 meter (194-by-384 feet) area. All services for subsystem installation are available on site so no construction is necessary. The location has docking facilities and is fenced and closed to the public.

Alternatives to the proposed ADS ocean tests include testing alternatives, the no-action alternative and an alternative test site. The only testing alternative to the proposed ocean tests is to obtain the needed information through laboratory testing. This alternative does not meet the objectives of the tests since real-world conditions are necessary to verify and validate ADS capabilities. Site and operational criteria were very restrictive in order to simulate targeted real world scenarios. Criteria included water depth, acoustic performance width, minimum passage width, bottom characteristics, ocean conditions, and proximity to Navy/contractor assets. Due to the specificity of the siting and operational criteria, the only alternatives found to be feasible and therefore carried forward for analysis within the EA were the proposed action, one alternative test site for the IAT, and the no-action alternative. If the no-action alternative is selected and the ocean tests are not implemented, ADS would not receive acquisition approval. Since ADS was created in direct response to an identified, documented, and validated mission need, the Navy's objective of developing an environmentally sound littoral undersea surveillance system would not be met.

The EA describes current baseline conditions and evaluates potential impacts from the proposed project and the no-action alternative on the following environmental resources: air quality, noise, marine environment, marine biology, marine mammals, terrestrial biology, land use, traffic, socioeconomics, and cultural resources. The key issue identified during preparation of this EA was the potential for acoustic impacts on fish and marine mammals. However, the analysis of potential acoustic impacts demonstrated that significant impacts on fish or marine mammals would not occur from implementation of the proposed ADS ocean tests. These findings are briefly summarized below.

The proposed action will utilize four sources that produce the following acoustic characteristics:

- Sound Projector. The sound projector will be pulsed (1/8 duty cycle resulting in 0.25-second pulse every 2 seconds) rather than continuous wave (CW). The highest frequency of transmitted sounds will be 1000 Hz with a source level of 163 dB re 1 µPa-m and the lowest frequency will be 100 Hz with a source level of 172 dB re 1 µPa-m.
- Acoustic Positioning System. A brief, repetitive pulsed chirp sound with a sound source level of 196 dB re 1 µPa-m at a repetition rate up to once per second. The frequency would be 15-18 kHz and the pulse duration would be about 80 milliseconds. The sound source level would attenuate to about 176 dB at a radius of 10 m and to about 156 dB at 100 m. The electronics are "off the shelf" technology similar to fish finders and there is no scientific or regulatory controls or documented concerns regarding the use of fish finders or similar electronics commonly used on recreational and commercial vessels.

- Light Bulb Sound Source. The imploding lightbulbs would generate a 1.8 millisecond pulse with a peak pressure of 174 dB $_{rms}$ at 20 m. Since the pulse duration is extremely short, the root-mean-square value was evaluated to demonstrate the lack of potential effects.
- Vessel Operations. Sound associated with vessel operations will be less than 159 dB re 1 µPa.

The received sound levels are expected to diminish to the sound level (dB re 1µPa) indicated at a distance (in meters) from the sound source as shown in Table 1.

Unclassified	distance to contours		
Sound Source	160 dB	140 dB	120 dB
Sound projector (lowest frequency/highest frequency)	4m / 2m	35-45m/ 15 m	400-550 m/ 140-180 m

Table 1. Distance (meters) to acoustic contours

Acoustic Impact to Fish. Subtle changes in fish behavior occur only at or above received levels of 160 dB re 1 µPa. This includes the region within 4 meters from the source for the lower frequency and right at the source for the highest frequency sounds. See Table 1. Fish would be exposed to these sound levels for only a short period of time and would quickly return to normal behaviour. Because the reaction zone would be limited, fish would be exposed to these sound levels for only a short period. Thus, the source would not affect fish catchability. In addition, the exposure to these received levels would not have deleterious effects on the physical hearing abilities of fish.

Acoustic Impact to Marine Mammals. Few species or numbers of marine mammals are expected to occur at the test sites. The identified acoustic sources would not cause Permanent Threshold Shift in any marine mammal. Likewise, the proposed action would not cause Temporary Threshold Shift (TTS) in any toothed whale. For baleen whales and hair seals, TTS is unlikely based upon the maximum source level of 172 dB re 1µPa-m which attenuates down to 160 dB at a maximum range of 4 meters. In all cases, negligible impacts to marine mammals would occur. In addition, acoustic impacts are not predicted to result in a "take" or "harassment" of any marine mammal, based on the definitions contained in the Marine Mammal Protection Act (MMPA). It is the Navy's interpretation that minor changes in behavior do not constitute harassment under the MMPA. In the absence of definitive scientific data and regulatory standards regarding behavioral responses of marine mammals to low frequency sounds, it is reasonable to conclude from current knowledge that any potential reaction to the noise-producing elements of the ADS tests would be negligible.

Marine Mammal Acoustic Mitigation. The proposed ADS tests are not intrusive and have been designed to minimize environmental effects. However, a mitigation measure has been recommended and incorporated into the ADS ocean tests program to minimize any potential for acoustic impacts on marine mammals. Whenever starting to transmit low-frequency test sounds with the sound source, the level would ramp up (i.e., be increased gradually) from an overall level less than or equal to 140 dB re 1 ? Pa-m to the desired operating level at a rate not exceeding 6 dB per minute. This mitigation measure is not necessary to support the finding that impacts would be below the threshold of significance and would be below the threshold of take by harassment as defined by the Marine Mammal Protection Act. There is no direct evidence that any marine mammal species would significantly modify their normal behavior in response to the localized, short-term effects generated by implementation of the proposed action. However, ramp-up of the sound source has been integrated into ADS

test plans because it does not interfere with test operations and it provides further assurance that there would be no significant impacts on marine mammals.

Acoustic Impact to Human Divers. At the proposed test site, SCUBA divers occasionally use the nearshore area off a county park. During the time when the underwater sound source would be towed along the inner portion of the zone of operation, some of these areas would be within the 120 dB re 1 ? Pa zone of ensonification. Ambient noise levels of up to 122 dB re 1 ? Pa in the 100 Hz band have been measured offshore nearby, so the 120 dB re 1 ? Pa zone of ensonification does not represent a substantial change from existing noise levels. Furthermore, this area is only occasionally used for SCUBA diving due to the lack of marine life offshore. Most SCUBA diving activities take place approximately 5 km (3 miles) north or approximately 1 km (<1 mile) south of this area. Consequently, the likelihood of encountering SCUBA divers in the 120 dB re 1 µPa zone of ensonification during the active acoustic portions of the tests is very low since depths exceed recreational diving depths (typically <40 meters). Additionally, the U.S. Navy Bureau of Medicine and Surgery has agreed to a 130 dB interim exposure guideline for civilian divers, so there is no likelihood of encountering divers within the 130 dB contour where depths exceed 100 meters. For these reasons, potential public safety impacts of the proposed ocean tests would not be significant.

Air Quality. The test site is located in a regional Air Pollution Control Agency District and is designated as being in attainment for all Clean Air Act criteria pollutants. There would be no exceedence of National Ambient Air Quality Standards, and the proposed project would be consistent with the State Implementation Plan. Since the proposed action would not occur in an area of nonattainment for criteria pollutants, no Clean Air Act conformity determination is required. The proposed action would result in short-term emissions and would not change the attainment status of the air district. No significant impacts to air quality would result.

Water Quality. All component surfaces with the potential to corrode are either encapsulated, coated with corrosion resistant materials, or have a secondary housing. The proposed alkaline batteries are self-contained and closed systems. Such protection inhibits virtually all corrosion-related metal from contact with water or sediments. No significant impacts to water quality or marine sediments would result.

Marine Biology. ADS components have been designed to minimize drag, limiting sediment disturbance following component deployment. Portions of the marine environment where impacts on marine biota may occur are therefore limited to the benthic organisms directly in contact with the ADS ocean test components. This amounts to a very limited sediment interface area, given the small diameters of ADS test cables (0.56 cm - 1.27 cm/0.22 inch - 0.5 inch). No significant impacts to marine biology would result.

Marine Mammals. The nearest haul-out areas are 4.4 km from the proposed test site. During operations or in the unlikely event of non-retrieval, the potential for entanglement or ingestion would be remote based on the size and shape of cables and test components. The cable would consist of a single line extending relatively linearly along the bottom. There would also be one vertical cable from the sea floor to a vessel during the SNT. It is highly unlikely that any marine mammals would become entangled with this arrangement of cables.

Terrestrial Biology. The shore station vans to be used for IAT would be parked on a developed area; no impacts to vegetation would occur. No federal or state listed species or critical habitats or wetlands occur at the shore station site with the exception of the potential for a transient flyover of a peregrine falcon, bald eagle, or marbled murrelet. No birds flying over the shore station or the ocean operation areas would be impacted by the proposed action. No significant impacts to terrestrial biological resources would result.

Cultural Resources. There are no known underwater archaeological resources within the proposed test site and no documented cultural resources at the proposed shore facility. The potential for disturbance to undocumented underwater archaeological resources is minimal, given the limited potential for disturbance (cable and components laid on the sea floor for a maximum of 23 days) and the low likelihood of encountering undiscovered cultural resources. No significant impacts to cultural resources would result.

Endangered Species. No federally listed threatened or endangered plant or animal species would be impacted with implementation of the proposed action.

Other Resources. The extent and magnitude of the operation of two vessels and deployment of the described equipment is consistent with offshore land use in this area. Therefore, the proposed action will not result in significant changes to surface noise, underwater noise, human health, or visual resources. Furthermore, the proposed action is consistent to the maximum extent practicable with the state's Shoreline Management Act. A coastal consistency determination (CCD) was prepared as Appendix A of the EA..

Environmental Justice. The proposed action complies with environmental justice objectives since it would not disproportionately affect human health or the environment in low income, minority areas or among disadvantaged populations.

Impacts Of Modifying The SNT Test Plan For Deployment At IAT Site. The SNT plan was slightly modified to allow for testing in deeper waters. Neither the type nor duration of the tests proposed here has been changed from the EA analysis. By nature, the SNT plan is on a smaller scale than IAT, with a duration of testing proposed at six days with one node vice 17 days with four nodes. For this reason, it was determined that the scope of impacts associated with implementing the new test plan do not change the conclusions reached in the EA. Impacts associated with the proposed change were evaluated and summarized as follows:

Footprint (region of influence) does not increase.

1. Overall acoustic impact would not change. A total of 4 hours of acoustic testing would be moved from the proposed SNT site to the proposed IAT site.
2. No cumulative impacts would result because the two tests would not occur simultaneously or directly in sequence.
3. SNT is less intrusive than IAT and it is determined that adding the impacts associated with SNT at the IAT site would not elevate the significance of impacts. All impacts would remain below the threshold of significance. Although previously determined not to be significant, impacts to crabbing and fishing would likely be less due to the movement to deeper water.
4. The movement of air emissions from the local Air Pollution Authority District to the regional Air Pollution Control Agency District would not modify conclusions presented above for air quality.
5. Use of the TDV does not result in discernible impacts.
6. Overall, the proposed change of testing one node deployed via TDV with six associated days of testing would result in negligible impacts to the environment. Modifying the SNT Test Plan to include the use of the TDV at the proposed IAT site would result in no individually or cumulatively significant impacts.

The review for consistency with applicable environmental requirements at the federal, state, and local level found no threat of violation associated with the proposed action. For the above reasons, the intensity of effects caused by implementation of the proposed action and alternatives would be less than significant.

Based upon information gathered during preparation of the EA, the Navy concludes that implementation of the proposed action will not have a significant effect on the environment.

Due to the nature of the ADS Program the final Environmental Assessment prepared by the Navy is classified. Specifically, locations and dates of system tests and certain system performance specifications are classified. An unclassified version of the EA may be obtained from: Commanding Officer, Naval Facilities Engineering Service Center, 1100 23rd Avenue, Port Hueneme, California 93043-4320, (Attn: Marcia Kingsbury/ESC51), telephone (805) 982-1420.

ADS Program final Environmental Assessment document (unclassified version) - SPAWAR News Releases